MDR-IF120/IF120K

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model
E Model
Australian Model

MDR-IF120

TMR-IF120

MDR-IF120K is Composed of the following models.

COMPONENT MODEL NAME FOR MDR-IF120K

Cordless Stereo Headphones	MDR-IF120
Transmitter	TMR-IF120

For Cordless Stereo Headphones (MDR-IF120), only the following parts are for service.

Parts No.	Description
4-979-830-01	LID, BATTERY CASE
4-979-838-01	PAD, EAR

SPECIFICATIONS

General

Modulation system	Frequency modulation
Carrier frequency	Right 2.8 MHz Left 2.3 MHz
Frequency response	18 – 22,000 Hz

Transmitter

Power source: DC IN 9V jack accepts power supplied from the AC power adaptor for use on the following voltages:

Where purchased	Operating voltage
U.S.A. / Canada	120 V AC, 60 Hz
U.K.	230 – 240 V AC, 50 Hz
European countries	220 – 230 V AC, 50 Hz
Australia	240 V AC, 50 Hz
Other countries	110 – 120 V / 220 – 240 V AC, 50 / 60 Hz

Audio input	Phono jacks / stereo mini jack
Dimensions	Approx. 152 × 40 × 72 mm ($6 \times 1\,^1/_2 \times 2\,^3/_4$ in.) (w / h / d)
Mass	Approx. 80 g (2.8 oz.)

Headphones

Power source	DC 1.5 V, 1 × R6 (size AA) battery
Mass	Approx. 135 g (4.8 oz.) including battery

Design and specifications are subject to change without notice.

CORDLESS STEREO HEADPHONES SYSTEM

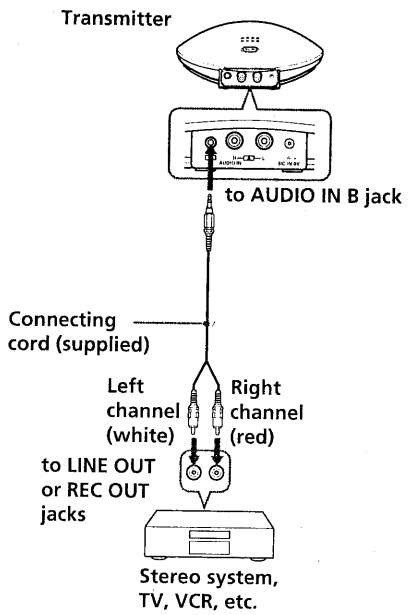
SONY®

This section is extracted from instruction manual.

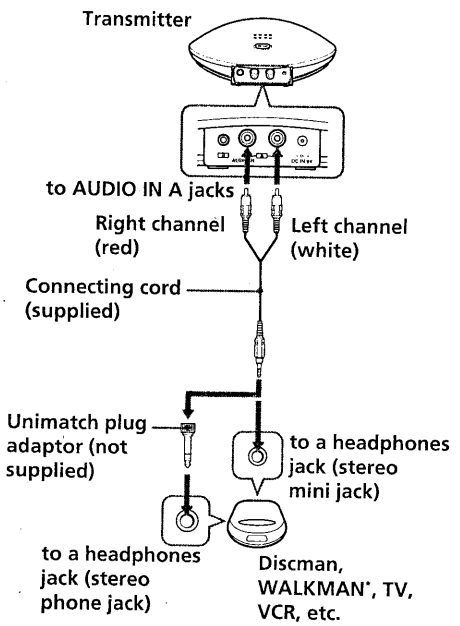
Setting up the transmitter

1 Connect the transmitter to audio/video equipment. Select one of the hookups below depending on the jack type:

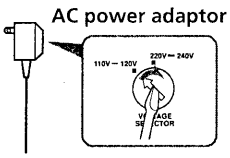
ⓐ To connect to LINE OUT or REC OUT jacks



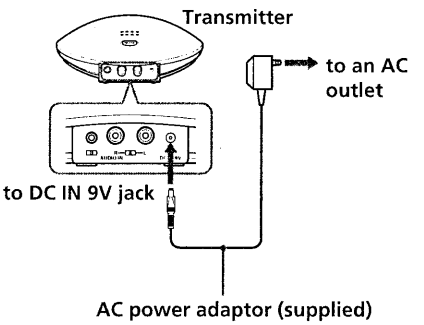
ⓑ To connect to a headphones jack


Transmitter
to AUDIO IN A jacks
Right channel (red)
Left channel (white)
Connecting cord (supplied)
Unimatch plug adaptor (not supplied)
to a headphones jack (stereo mini jack)
to a headphones jack (stereo phone jack)
Discman, WALKMAN*, TV, VCR, etc.

2 If your AC power adaptor is equipped with a voltage selector, before connecting the AC power adaptor to an AC outlet, set it to the operating voltage in your area with a screw driver.

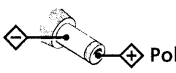


3 Connect the transmitter to a power source.



Notes

- Do not connect to the AUDIO IN A jacks and B jack at the same time. If you do so, the audio signals may be mixed.
- Use only the supplied AC power adaptor. Do not use any other AC power adaptor.

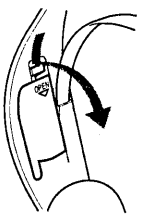


- If the plug of the AC power adaptor does not fit in the AC outlet, use the supplied AC plug adaptor.
- When you connect the connecting cord directly to an earphone jack, the audio signal will not be output through the right channel. In such a case, use the separately sold PC-236HG plug adaptor.

* WALKMAN is a registered trademark of Sony Corporation.

Setting up the headphones

1 Open the battery compartment lid on the left inner side of the headband.



2 Insert one R6 (size AA) battery by matching the + and – on the battery to the + and – in the battery compartment.

3 Close the battery compartment lid.

Battery life

Battery	Approx. hours
Sony alkaline battery AM3 (N)	100
Sony battery SUM-3 (NS)	50

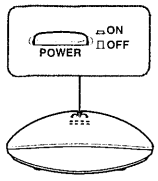
When to replace the battery

Replace the battery with new one when the POWER indicator dims, and a hissing noise increases.

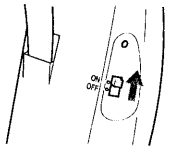
Listening to a program

1 Turn on the audio/video equipment connected to the transmitter.

2 Turn on the transmitter. The infrared emitters light up.

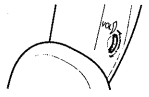


3 Turn on the power of the headphones. The power indicator lights in red.



4 Put on the headphones.

5 Adjust the volume.



Mute function

If a hissing noise is heard when the infrared rays are obstructed, or the headphones are used outside of the effective range (see the next section), the mute function will be activated and the sound will not be heard from the headphones. To restore the sound, move nearer toward the transmitter or remove the obstruction.

After listening to a program

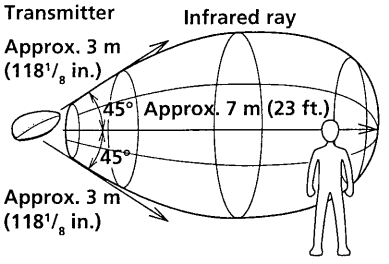
Take the headphones off before turning off the headphones and the transmitter. Otherwise you may hear some noise when the infrared rays are suddenly cut off.

Note

The infrared emitters light up when the transmitter is turned on. The brightness of the emitters may not be uniform, however, this is not a malfunction.

The effective areas of the transmitter

The illustration below shows the approximate area covered by the infrared rays emitted from the transmitter.



Notes

- If you use the headphones at too great a distance from the transmitter, you may hear a hissing noise and if there is an object between the receiver and the transmitter, the sound may be interrupted. These phenomena are inherent to infrared ray communication and do not mean that there is a problem with the unit itself.
- The infrared rays will not penetrate walls or opaque glass, therefore, be sure to stay within sight of the transmitter.
- When you use the headphones inside the area illustrated in the diagrams, the transmitter can be placed in the front, behind or by the side of the listener.

Precautions

- The CE mark on the unit is valid only for products marketed in the European Union.
- When the headphones is not to be used for a long period of time, remove the battery to avoid damage caused by battery leakage and subsequent corrosion.
- When the transmitter is not to be used for a long period of time, disconnect the AC power adaptor from the AC outlet holding the plug. Do not pull on the cord.
- Do not leave the cordless stereo headphones system in a location subject to direct sunlight, heat or moisture.
- The nameplate indicating operating voltage, power consumption, etc., is located on the bottom of the AC power adaptor (European models only).

Notes on headphones

Preventing hearing damage

Avoid using headphones at high volume. Hearing experts advise against continuous, loud and extended play. If you experience a ringing in your ears, reduce the volume or discontinue use.

Caring for others

Keep the volume at a moderate level. This will allow you to hear outside sounds and to be considerate to the people around you.

If you have any questions or problems concerning the system that are not covered in this manual, please consult the nearest Sony dealer.

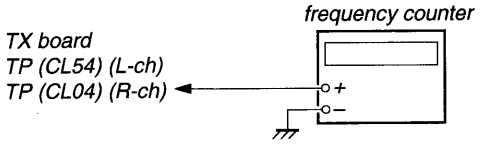
Be sure to bring the headphones and the transmitter to the Sony dealer when requiring repair work.

SECTION 2
ELECTRICAL ADJUSTMENTS

Note:
1. The adjustments should be performed in the order given.
2. The adjustments and measurements should be performed for both L-ch and R-ch unless otherwise indicated.
3. L-ch adjustment should be completed before performing R-ch adjustment.

OSCILLATING FREQUENCY ADJUSTMENT

Connection:



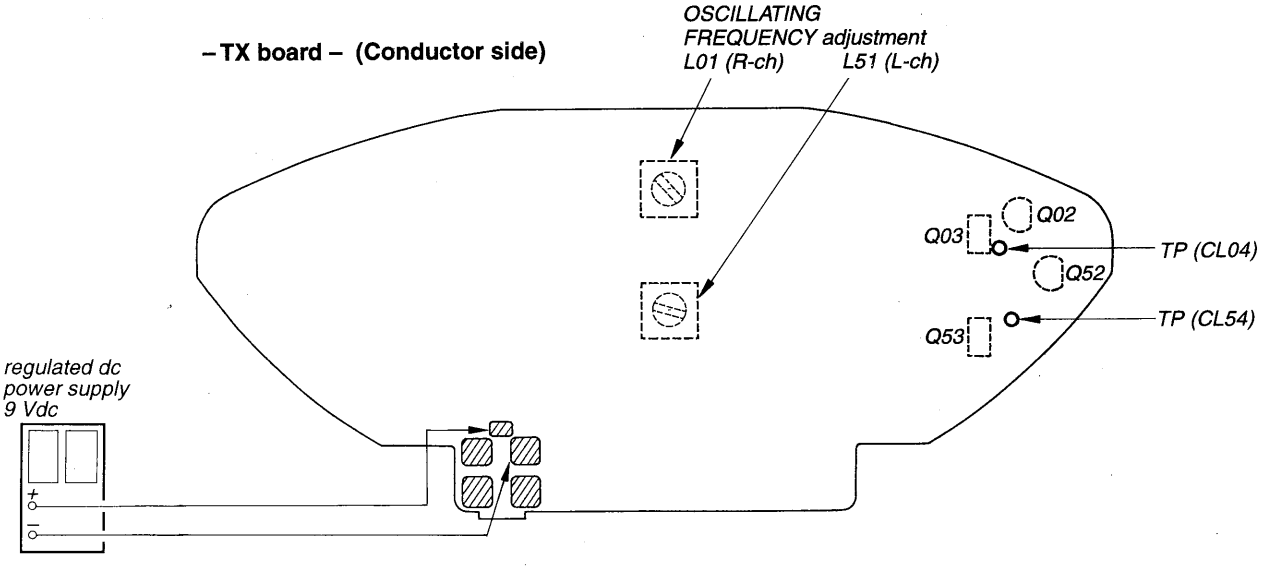
Adjustiment procedure:

No signal state.
1. Connect the frequency counter to TP (CL54) (L-ch) and TP(CL04) (R-ch).
2. Adjust with L51 (L-ch) and L01 (R-ch) so that the reading on the frequency counter becomes the specified value.

Specified Value:

L-ch	L51	2.3MHz±2kHz
R-ch	L01	2.8MHz±2kHz

Connection and Adjustment Location

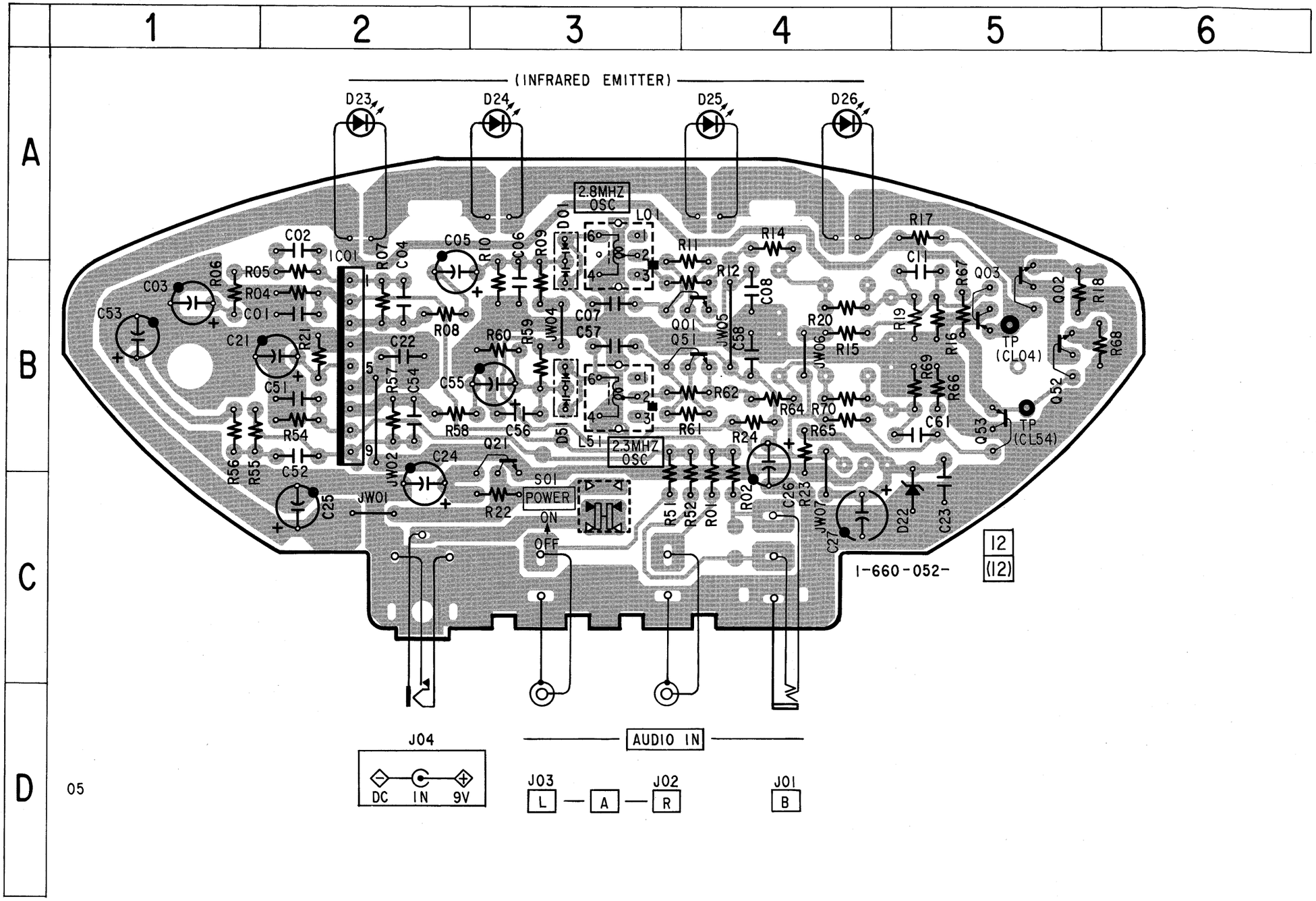


SECTION 3
DIAGRAMS

3-1. PRINTED WIRING BOARD

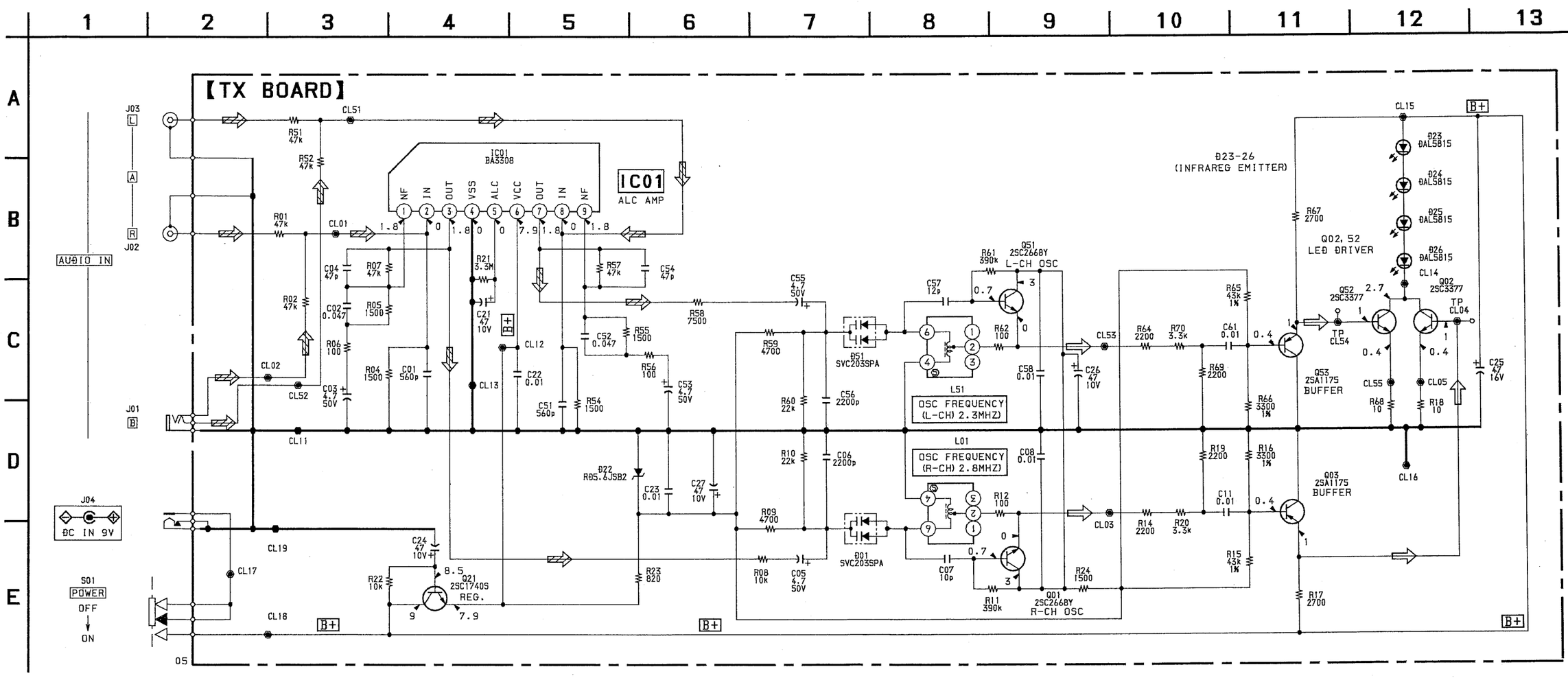
• **Semiconductor Location**

Ref. No.	Location
D01	A-3
D22	C-5
D23	A-2
D24	A-3
D25	A-4
D26	A-4
D51	B-3
IC01	B-2
Q01	B-4
Q02	B-5
Q03	B-5
Q21	B-3
Q51	B-4
Q52	B-5
Q53	B-5



Note:
- ——o : parts extracted from the component side.
- —o— : indicates side identified with part number.
- ▒▒▒ : Pattern from the side which enables seeing.

3-2. SCHEMATIC DIAGRAM

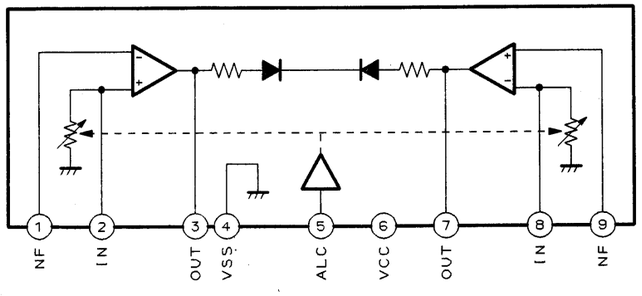


Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- B+ : B+ Line.
- ▭ : panel designation.
- ▭ : adjustment for repair.
- Power voltage is dc 9 V and fed with regulated dc power supply from external power voltage jack.
- Voltages are dc with respect to ground under no-signal conditions.
- Voltages are taken with a VOM (10 MΩ/V). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : RF signal
  ⇛ : AUDIO signal

• IC Block Diagram

IC01 BA3308

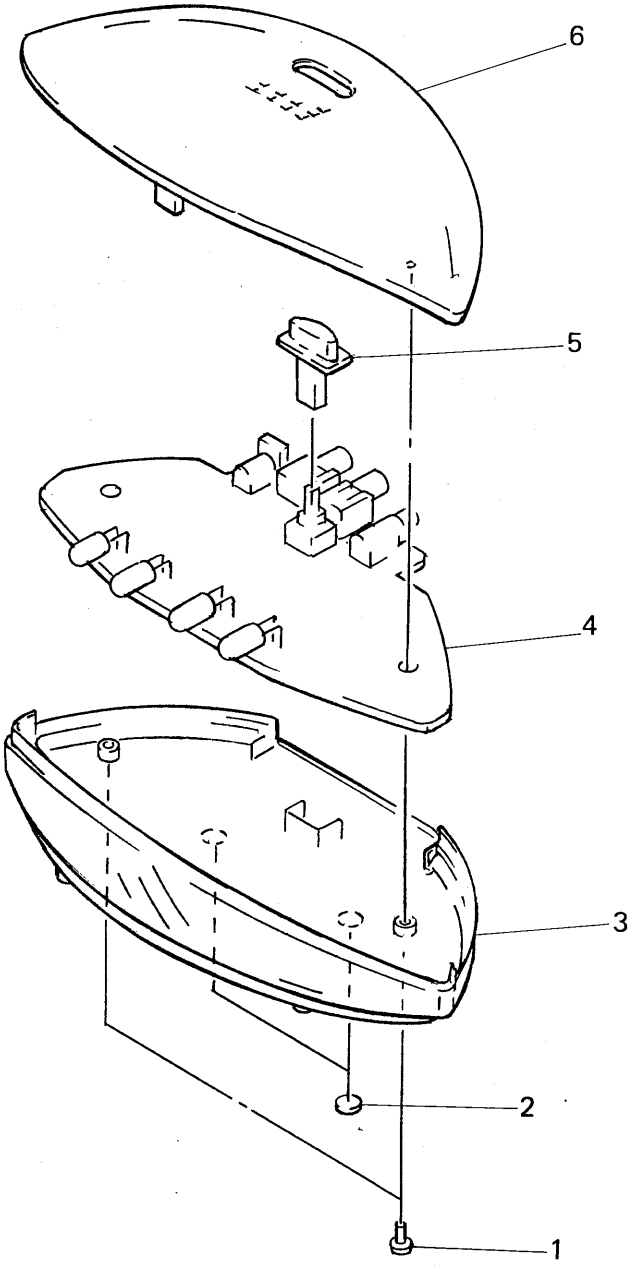


SECTION 4

EXPLODED VIEW

NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearrance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories and packing materials list is given in the last of this parts list.



Ref. No.	Part No.	Description	Remark
1	7-685-104-19	SCREW +P 2X6 TYPE2 NON-SLIT	
2	3-320-382-01	FOOT, RUBBER	
3	4-979-840-01	CABINET (LOWER)	
* 4	A-4542-364-A	TX BOARD, COMPLETE	
5	4-979-841-01	COVER (SWITCH)	
6	4-979-839-01	CABINET (UPPER)	

TX

SECTION 5
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Abbreviation
  AUS:Australian
  E13:220-240V AC Area
  E92:120V AC Area
  JE:Tourist
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA..: μA.. uPA..: μPA..
  uPB..: μPB.. uPC..: μPC.. uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH

When indicating parts by reference number, please include the board.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description			Remark
*	A-4542-364-A	TX BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C01	1-162-291-31	CERAMIC	560PF	10%	50V
C02	1-130-491-00	MYLAR	0.047uF	5%	50V
C03	1-126-963-11	ELECT	4.7uF	20%	50V
C04	1-162-215-31	CERAMIC	47PF	5%	50V
C05	1-126-963-11	ELECT	4.7uF	20%	50V
C06	1-162-302-11	CERAMIC	0.0022uF	20%	16V
C07	1-162-199-31	CERAMIC	10PF	5%	50V
C08	1-162-306-11	CERAMIC	0.01uF	30%	16V
C11	1-162-306-11	CERAMIC	0.01uF	30%	16V
C21	1-104-664-11	ELECT	47uF	20%	10V
C22	1-162-306-11	CERAMIC	0.01uF	30%	16V
C23	1-162-306-11	CERAMIC	0.01uF	30%	16V
C24	1-104-664-11	ELECT	47uF	20%	10V
C25	1-104-664-11	ELECT	47uF	20%	16V
C26	1-104-664-11	ELECT	47uF	20%	10V
C27	1-104-664-11	ELECT	47uF	20%	10V
C51	1-162-291-31	CERAMIC	560PF	10%	50V
C52	1-130-491-00	MYLAR	0.047uF	5%	50V
C53	1-126-963-11	ELECT	4.7uF	20%	50V
C54	1-162-215-31	CERAMIC	47PF	5%	50V
C55	1-126-963-11	ELECT	4.7uF	20%	50V
C56	1-162-302-11	CERAMIC	0.0022uF	20%	16V
C57	1-162-201-31	CERAMIC	12PF	5%	50V
C58	1-162-306-11	CERAMIC	0.01uF	30%	16V
C61	1-162-306-11	CERAMIC	0.01uF	30%	16V
		< DIODE >			
D01	8-719-057-93	DIODE	SVC203SPA-AL		
D22	8-719-114-35	DIODE	RD5.6JSB		
D23	8-719-992-13	DIODE	DAL5815 (INFRARED EMITTER)		
D24	8-719-992-13	DIODE	DAL5815 (INFRARED EMITTER)		
D25	8-719-992-13	DIODE	DAL5815 (INFRARED EMITTER)		
D26	8-719-992-13	DIODE	DAL5815 (INFRARED EMITTER)		
D51	8-719-057-93	DIODE	SVC203SPA-AL		
		< IC >			
IC01	8-759-939-73	IC	BA3308		
		< JACK >			
J01	1-764-270-11	JACK, STEREO MINIATURE (DIA. 3.5) (AUDIO IN B)			
J02	1-764-269-21	JACK, PIN (AUDIO IN A R-CH)			
J03	1-764-269-11	JACK, PIN (AUDIO IN A L-CH)			
J04	1-573-667-11	JACK, DC (POLAR UNITY TYPE) (DC IN 9V)			
		< COIL >			
L01	1-411-714-11	COIL (OSC) (2.8MHz)			
L51	1-411-713-11	COIL (OSC) (2.3MHz)			
		< TRANSISTOR >			
Q01	8-729-266-83	TRANSISTOR	2SC2668-Y		
Q02	8-729-024-00	TRANSISTOR	2SC3377-T93QR		
Q03	8-729-119-76	TRANSISTOR	2SA1175-HFE		
Q21	8-729-119-78	TRANSISTOR	2SC403SP-51		
Q51	8-729-266-83	TRANSISTOR	2SC2668-Y		
Q52	8-729-024-00	TRANSISTOR	2SC3377-T93QR		
Q53	8-729-119-76	TRANSISTOR	2SA1175-HFE		
		< RESISTOR >			
R01	1-249-437-11	CARBON	47K	5%	1/4W
R02	1-249-437-11	CARBON	47K	5%	1/4W
R04	1-249-419-11	CARBON	1.5K	5%	1/4W
R05	1-249-419-11	CARBON	1.5K	5%	1/4W
R06	1-247-807-31	CARBON	100	5%	1/4W
R07	1-249-437-11	CARBON	47K	5%	1/4W
R08	1-249-429-11	CARBON	10K	5%	1/4W
R09	1-249-425-11	CARBON	4.7K	5%	1/4W
R10	1-247-863-11	CARBON	22K	5%	1/4W

Ref. No.	Part No.	Description			Remark
R11	1-247-893-11	CARBON	390K	5%	1/4W
R12	1-247-807-31	CARBON	100	5%	1/4W
R14	1-249-421-11	CARBON	2.2K	5%	1/4W
R15	1-215-460-00	METAL	43K	1%	1/4W
R16	1-215-433-00	METAL	3.3K	1%	1/4W
R17	1-249-422-11	CARBON	2.7K	5%	1/4W
R18	1-249-393-11	CARBON	10	5%	1/4W
R19	1-249-421-11	CARBON	2.2K	5%	1/4W
R20	1-249-423-11	CARBON	3.3K	5%	1/4W
R21	1-259-882-11	CARBON	3.3M	5%	1/4W
R22	1-249-429-11	CARBON	10K	5%	1/4W
R23	1-249-416-11	CARBON	820	5%	1/4W
R24	1-249-419-11	CARBON	1.5K	5%	1/4W
R51	1-249-437-11	CARBON	47K	5%	1/4W
R52	1-249-437-11	CARBON	47K	5%	1/4W
R54	1-249-419-11	CARBON	1.5K	5%	1/4W
R55	1-249-419-11	CARBON	1.5K	5%	1/4W
R56	1-247-807-31	CARBON	100	5%	1/4W
R57	1-249-437-11	CARBON	47K	5%	1/4W
R58	1-247-852-11	CARBON	7.5K	5%	1/4W
R59	1-249-425-11	CARBON	4.7K	5%	1/4W
R60	1-247-863-11	CARBON	22K	5%	1/4W
R61	1-247-893-11	CARBON	390K	5%	1/4W
R62	1-247-807-31	CARBON	100	5%	1/4W
R64	1-249-421-11	CARBON	2.2K	5%	1/4W
R65	1-215-460-00	METAL	43K	1%	1/4W
R66	1-215-433-00	METAL	3.3K	1%	1/4W
R67	1-249-422-11	CARBON	2.7K	5%	1/4W
R68	1-249-393-11	CARBON	10	5%	1/4W
R69	1-249-421-11	CARBON	2.2K	5%	1/4W
R70	1-249-423-11	CARBON	3.3K	5%	1/4W

< SWITCH >

S01	1-554-419-00	SWITCH, PUSH (1 KEY) (POWER)	

****

Ref. No.	Part No.	Description	Remark
		ACCESSORIES & PACKING MATERIALS	
		**********	
⚠	1-465-948-31	ADAPTOR, AC (AC-E9015) (AEP, E13)	
⚠	1-467-852-11	ADAPTOR, AC (AUS)	
⚠	1-473-588-11	ADAPTOR, AC (AC-S901) (US, Canadian, E92)	
⚠	1-473-590-11	ADAPTOR, AC (UK)	
⚠	1-569-008-11	ADAPTER, CONVERSION 2P (JE)	
⚠	1-693-130-11	ADAPTOR, AC (AC-905) (JE)	
	1-751-754-11	CORD, CONNECTION (STEREO MINI PLUG—PIN PLUG)	
*	3-324-066-01	SHEET, PROTECTION (for MDR-IF120)	(EXCEPT US)
	3-336-764-01	SHEET, PROTECTION (for TMR-IF120)	(EXCEPT US)
	3-810-651-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH) (US, Canadian, AEP, UK, E, AUS, JE)	
	3-810-651-21	MANUAL, INSTRUCTION (DUTCH, GERMAN) (AEP)	
	3-810-651-31	MANUAL, INSTRUCTION (ITALIAN, PORTUGUESE)	(AEP)
*	4-981-226-01	BOX, INDIVIDUAL (Canadian, AEP, E)	
*	4-981-226-11	BOX, INDIVIDUAL (UK, JE)	
*	4-981-226-21	BOX, INDIVIDUAL (AUS)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

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